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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,243	07/22/2003	Andrew Perry	LAM2P426	9295

25920 7590 08/10/2005

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EXAMINER

KACKAR, RAM N

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/625,243

Applicant(s)

PERRY, ANDREW

Examiner

Ram N. Kackar

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 and 10-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8,9 and 19-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/8/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 8-9 and 19-23 in the reply filed on 6/7/2005 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 8-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Liu et al (20030201162).**

Liu et al disclose a plasma processing apparatus which could be used for etching (Paragraph 03) and capable of determining end point (Paragraph 0011) comprising a detector (*sensor*) for detecting reflected light from plasma emission by optical emission spectroscopy emanating from different discrete regions of the plasma in a direction parallel to the substrate and determining power spectrum (*specific optical signal across a frequency band*) for each of the different regions (Paragraph 0017) and comparing each of the power spectra to a predetermined value (*model optical signal*) where end point is determined from one of the detector (*sensor*) (Paragraph 0077). Further the optical signals are connected to each sensor from discrete region by fiber optics (Paragraph 0020).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuzawa et al (2001-093885) in view of Georges G. Bret (US 5305082).**

Matsuzawa et al disclose a system for detecting etching end point in a plasma processing chamber where discrete region signals are connected through optical fiber to discrete detection regions and disclose collimated broad beam light directed through a view port on to a substrate. Matsuzawa et al teach that the analysis of the signals enables determination of end point (Abstract and Fig 1).

Matsuzawa et al do not disclose explicitly disclose CCD array for measuring individual signals from the optical fibers.

Georges G. Bret discloses spatial signals from a plurality of optical fibers projected on 2D CCD array for high resolution measurement (Abstract and Fig 5).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have a 2D CCD array for measurement of signals for high spatial resolution.

6. Claims 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al (20030201162) in view of Matsuzawa et al (2001-093885).

Liu et al disclose a plasma processing apparatus which could be used for etching (Paragraph 03) or deposition and capable of determining end point (Paragraph 0011) comprising a detector (*sensor*) for detecting reflected light from plasma emission by optical emission spectroscopy emanating from different discrete regions of the plasma in a direction parallel to the substrate and determining power spectrum (*specific optical signal across a frequency band*) for each of the different regions (Paragraph 0017) and comparing each of the power spectra to a predetermined value (*model optical signal*) where end point is determined from one of the detector (*sensor*) (Paragraph 0077). Further the optical signals are connected to each sensor from discrete region by fiber optics (Paragraph 0020) and received by a CCD array (Paragraph 49).

Liu et al do not disclose a broad beam of light directed through the view port.

Matsuzawa et al disclose a system for etching end point detection in a plasma processing chamber where discrete region signals are connected through optical fiber to discrete detection regions and disclose collimated broad beam light directed through a view port on to a substrate. Matsuzawa et al teach that the analysis of the signals enables determination of end point.

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have broad beam of light in order to be able to have measurement from substrate with broader wave spectrum and resolution.

Art Unit: 1763

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ram Kackar AU 1763